THE VETERINARY RECORD

A Weekly Journal for the Profession.

Founded by William Hunting, F.R.C.V.S.

No. 1387. FEBRUARY 6, 1915. Vol. XXVII.

Veterinary War Experience.

Those veterinary surgeons who have joined or are joining the army for temporary service are to have the chance of a lifetime in several directions. One is that they will have unique opportunities of special professional experience. They will bear a part, if not in actual campaigning, at least in the care and preparation of horses prior to campaigning; and they will learn much of military methods of horsemastership. Probably some of those methods, or adaptations of them, could be advantageously brought back into civil practice; and certainly much of the experience with army horses will be valuable afterwards. Those who join, therefore, should regard a widening of their professional knowledge as one of the personal rewards to be gained in the army; and they will probably best obtain it by systematic note-taking from the start.

The treatment of animals for wounds received in actual warfare is only a small part of army veterinary work. So far as the campaign in Western Europe is concerned, it seems likely to be relatively smaller than in most wars. The treatment of affections caused by overwork, exposure, or insufficient care is as important as that of wounds, or more so; but all these cases arise from actual campaigning.

Perhaps the most important of all military veterinary work lies in the preparation for campaigning—the management, and maintenance in health, of large masses of horses congregated together. This is the work in which the temporary veterinary officer is most likely to be engaged; the experience he will gain in it is precisely that which will be most useful to him on his return to civil life, and those who remain at the depôts in England will gain as much as those on the Continent. No such numbers of horses have ever been assembled for army purposes in England before. They have been brought together from many quarters; and the experience gained amongst them—especially in the prevention of both scheduled and unscheduled contagious disease—will be invaluable. Any young veterinary surgeon who is afterwards concerned with horse practice, especially with large studs, should be all the better a practitioner for the time he has spent in the Army.

Perhaps, after the war, some members may place their experiences of it on record. The Crimean war yielded a few interesting reports—among the mone from George Fleming, who served in its later stages at the very outset of his career. Every war must yield much veterinary experience of interest which there is no military reason for withholding.

EQUINE MANGE INFECTIONS.

On page 388 of the *Veterinary Record* for Jan. 23, 1915, Mr. Harry Lomas, M.R.C.V.S., submits a number of remarks by Mr. Shaw upon mange in horses, Some of them are so contrary to the experiences of other practitioners that I was surprised to find that no one had attacked the article, in this week's paper. It would take up too much space to go into each item in detail, so I will confine my remarks to the statement which the editorial in the issue mildly called "a revolutionary assertion." It is this:—

"There is no simple case of psoroptic mange; as a rule psoroptic, symbiotic, and often sarcoptic are found on the skin of the one horse."

There is certainly an ambiguity in this paragraph. The first eight words may mean that apart from the lesions due to the mite itself there is also some injury produced by the host in the acts of biting or rubbing. If that interpretation is used then it is untrue, because a great number of cases are encountered with small, localised and undisturbed lesions, and these are often erroneously referred to as ringworm. Manifestly the whole sentence is intended to mean:—If a horse has psoroptic mange, it always has some other form of mange as well; *as a rule* symbiotic accompanies psoroptic; at other times sarcoptic accompanies psoroptic: and *often* psoroptic, symbiotic and sarcoptic mange are found on the same animal.

If Mr. Lomas reports Mr. Shaw correctly the latter makes this assertion without the slightest qualification. He does not even say that it is his experience, in London and among the various types of horses worked in London. Be the affected stock thoroughbreds or carthorses the double or triple infection still applies in any practice in any district!

Now I submit that this state of affairs cannot be supported by experimental inquiry by anyone who has an intimate knowledge of the genera *Psoroptes*, *Chorioptes*, and *Sarcoptes*. What one is going to experience in each outbreak depends upon many factors, amongst which may be mentioned the type of mange present on the first animal to be affected, the type of animal affected, the season of the year, and the methods of stable management adopted. Mr. Shaw's remarks do not apply to the finding of more than one genus of mites on the body without the appearance of symptoms, for he uses the word "mange." In the last edition of Neumann (Parasites and Parasitic Diseases of the Domesticated Animals), we see the following on p. 108:—

"But our knowledge of the various species of acarina of scabies has been more especially ex-

tended by the classical works of Gurlt and Hertwig (*Vergleichende Untersuchungen über die Haut des Menschen und über Krätz und Räudelmilben*, Berlin, 1844), or Gerlach (*Krätze und Räude*, Berlin, 1857), of Fürstenburg (*Die Krätzmilben der Menschen und Thiere*, Leipzig, 1861), of Ch. Robin (*Memoires sur diverses espèces d'acariens de la famille Sarcoptidæ*, Moscow, 1869), and of Delafond and Bourguingnon (*Traité practique d'entomologie et de pathologie comparées de la psore*, Paris, 1862). The name of Megnin should also be honourably associated with these, because of the numerous memoirs he has contributed on the various groups of acarina, especially those of psora."

I have consulted the works of (1) Gerlach, (2) Fürstenburg, (3) Delafond and Bourguignon, and (4) Megnin, and in no case can I secure any support for Mr. Shaw's broad assertion. A number of diagrams in Neumann are derived from Raillet (*Traité de zoologie médicale et agricole*, Paris, 1895), and here again I find nothing in this direction. Our text books—Neumann, Law, Huytra and Marek, Freidberger and Frohner, Williams, and Neuveu-Lemaire are also silent on the matter. The possibilities of a double infection are, of course, occasionally alluded to.

Whenever extended microscopic examinations have been resorted to, the experience gained in Liverpool has been as follows;—

i. Chorioptic or symbiotic mange is the commonest equine form. It is often present on cart horses, and is often present alone.

ii. Psoroptic mange is the second commonest. In clean-legged horses it is usually the only form present. When it occurs on cart horses chorioptic or symbiotic mange may also be present; especially is this so where the stable management is neglected.

iii. Sarcoptic mange does not number five cases out of every 100 cases of body mange examined. It may be associated with psoroptic on the one hand and symbiotic on the other. In a *very few and rare* cases, in cart horses, the three forms have been found on the same animal.

With a sound knowledge of the parasites and microscopic methods I suggest, therefore, that a veterinary inspector in a large town would alter Mr. Shaw's original paragraph to;—

With regard to mixed infections of equine mange simple cases of psoroptic do occur, especially in light horses, In cart horses the symbiotic form may often be present as well. All three forms on the same animal, viz., sarcoptic, psoroptic and chorioptic, are encountered very rarely.

The experiences of others should certainly be recorded.

A. W. Noël Pillers, F.R.C.V.S.

Notes on The British Pharmacopœia, 1914.

Messrs. C. J. Hewlett & Son, of Charlotte Street and Curtain Road, London, E.C., have issued a convenient four page leaflet showing additions, omissions, and principal alterations in the new B.P., a copy of which they will send post-free to any veterinary surgeon on request.

FROSTBITE—A TREATMENT.

This disease is by no means unusual and is generally called Gangrenous Dermatitis, one of its simplest forms being known as "cracked heel." The symptoms shown in horses under my charge are: Severe lameness with great heat and pain located between the fetlock and hoof. These severe symptoms disappear in a few days under treatment and then appears a dark necrotic patch in affected area which sloughs away leaving a raw ugly wound which is difficult to heal. The disease is most severe when affecting the coronet as when the necrotic patch comes away you have often the corono-pedal joint implicated, and open-joint resulting.

As treatment is very difficult owing to horses having to stand in the open and on sodden ground, I devote my attention to preventative treatment, which consists—in keeping the legs as dry as possible, applying straw or hay ropes from fetlock to coronet, or smearing the parts usually affected with vaseline or other mild lubricant when available. The latter, in my opinion, is by far the best preventative.

J. Fox, Lieut. A.V.C. (S.R.),
20th Infantry Brigade, B.E.F.
January 25th, 1915.

ABSTRACTS FROM FOREIGN JOURNALS.

Fissure of Bone followed by Fracture from a Kick.

L. Hub, of Buchloe, records the following case of a horse, which was kicked on the left hind limb. When examined, the limb was bearing scarcely any weight. On the inner side of the left metatarsal bone, directly underneath the hock joint, there was a small oblique wound 4/5 in. broad, caused by the sharp shoe. The neighbourhood of the wound and the hock joint was moderately swollen. Palpation evoked violent evidences of pain. Probing the wound showed that the shoe had penetrated to the bone; but neither a fracture nor a splinter of bone could be demonstrated.

The treatment adopted was repeatedly thorough syringing out the wound, and bandaging it with dressings soaked in sublimate solution. On the third day the swelling and sensitiveness had almost disappeared, and the case then made such progress that, on the tenth day of the accident, the horse could again be used for light work.

On the eleventh day he was again worked, and went well. The next morning, he could not stand upon the limb that had been injured, was in great pain, and showed no appetite. Hub was again called, and found him standing upon three legs. The hock joint was swollen to double its normal circumference, and was very warm and extremely painful. The animal sweated and refused both oats and hay. As further examination gave no positive result, Hub suspected that an abscess was developing, either in consequence of uncleanliness and too early closure of the wound, or of the separ-

ation of a splinter of bone. He therefore ordered moist warm bandages impregnated with sublimate solution, but, instead of improvement, a daily increasing deterioration of the condition set in. The horse rested absolutely no weight on the limb, the pain increased, sweating appeared from time to time, and the appetite remained completely suppressed. On the night between the fourth and fifth days of treatment, he fell to the ground and could not be raised. He was finally hauled up with slings; but as he could not stand in them, he was let down again half-an-hour later, and was slaughtered the same day.

The post-mortem examination, made the next day, resulted as follows. When the hock joint was opened, a moderate quantity of yellow-red jelly like fluid escaped, and the joint itself had undergone jelly like transformation. A piece of bone the size of a hen's egg was broken off from the metatarsal bone. The fracture began about the middle of the surface of the hock, and then ran in an oblique direction downwards and inwards, This indicated that the kick had first caused a fissure of the metatarsal bone, which only developed into a complete fracture eleven days after the accident. As the fracture became complete during the night, its actual exciting cause could not be ascertained. Probably it arose from an unequal division of weight upon the limbs during either getting up or lying down.

The case shows that in kicks upon such bones as the metacarpal, metatarsal, or tibia, the possibility of the presence of a fissure should always be remembered, even when the local symptoms do not point conclusively to a serious lesion. In such cases it is advisable to keep the horse out of work and put him in slings, and to continue both precautions for three weeks.—(*Munch. Tier Woch.*)

Death from Disease of the Thyroid Glands.

August Toman, of Pola, reports (*Oesterr. Woch. f. Tierheilk.*) the following case of an old horse:—

In the left jugular furrow, close behind the larynx, was a firm swelling the size of an apple, which was not warmer than the surroundings, and could easily be moved upon the underlying tissues. On the right side, in the same place, was a similar swelling the size of a chestnut. A carcinomatous infection of both thyroid glands was strongly suspected.

The horse showed considerable difficulty in swallowing, and also an emaciation which increased with striking rapidity. Eczema was present upon the fore limbs. The eczematous sores were infested with flies, which did not cause any reaction on the part of the animal. After about nine days the horse, by that time emaciated to a skeleton, died.

The post-mortem examination confirmed the diagnosis. Upon section the carcinomatous thyroid glands showed numerous light yellow nodules, ranging from the size of a pin's head to that of a bean, upon their brown-red sectioned surfaces. The author regards general exhaustion, brought about by interference with the physiological activity of the thyroid glands, as the actual cause of death.—(*Munch. Tier Woch*).

A Severe case of Articular Rheumatism in a Dog.

B. Röhsler and W. Sserebrennikow record the following case of a dog, one year and a half old, which was brought to the clinique on account of depression of the appetite. The animal showed catarrhal inflammation of the mucous membranes of the nose, fauces, and larynx, with an increase of the area of cardiac dulness, and acceleration and arhythmia of the pulse. The gait was strained and difficult.

On the third day the dog became markedly lame on the right fore limb. The elbow joint was swollen, sensitive to pressure, and increased in temperature, and the movements were painful.

In the course of the next eight days the inflammation attacked the following other joints in the order named, viz.; the left elbow joint and both shoulder joints, and then the right and left knee and hip joint. The movements became more difficult and painful; and finally the dog remained continuously lying. Obstinate constipation, and accelerated and superficial respiration, were also observed. Fever, with temperatures of from 104° F. to just over 105°F., was present on the first day and last four days of the illness. Treatment with sodium salicylate brought no improvement; and the dog, now grown very cachectic, was destroyed.

Post-mortem examination showed the following lesions: The synovial fluid in the affected joints was increased in quantity and yellowish-red in colour, and contained shreds of fibrin. The tissues surrounding the joints showed œdematous infiltration, with hæmorrhages of varying size. Catarrh of the gastro-intestinal canal, serous pericarditis, adhesion of the pericardium to the epicardium, dilatation of the heart, marked thinning of the walls of the heart, especially of that of the right ventricle, and slight thickening of the cardiac valves, were the other lesions observed.—(*Zeitschr. f. wiss. und prakt. Vétérinar medicin*).

W. R. C.

THE RELATION OF THE TYPES OF TUBERCLE BACILLI.*

Summary of Report by Professor Eber.

Previous to the discovery of the tubercle bacillus many infection experiments were carried out with materials derived from human beings and animals with the object of demonstrating the connection between tuberculosis of men and animals.

Although too much value must not be attached to them, these early transmission experiments showed that certain differences exist between the effects produced upon experimental animals by viruses obtained from man and from animals, and particularly from cattle. All doubt regarding the non-identity of iuman and animal tuberculosis was, at least temporarily, destroyed by the proof furnished in 1882 by Robert Koch, that the tubercle bacillus was the specific cause of tuberculosis both in man and in animals.

*Presented at the Tenth International Veterinary Congress London, 1914

Although towards the end of the 'eighties the avian tubercle bacillus was distinguished from the tubercle bacilli of the other warm-blooded animals, and during the 'nineties the comparative studies of a number of American authors (Th. Smith, Frothingham, Dinwiddie) revealed certain differences in strains of the tubercle bacillus derived principally from human and bovine sources, during the eighteen years following the discovery of the organism the unity of the tubercle bacilli derived from mammals was not seriously questioned. This, however, was immediately changed when Koch, on the grounds of a number of transmission experiments carried out in conjunction with Schültz, announced at the London Tuberculosis Congress in 1901, that not only were human and bovine tuberculosis different diseases, but that bovine tuberculosis was not a source of danger to man.

Since that date extensive experiments have been made in all civilised countries to test Koch's view, and we now know that bovine tubercle bacilli play a part which must not be underestimated in the infection of man, and especially of children, and that, although the disease may sometimes run a benign course, it also causes serious and even fatal illnesses, such as meningitis and miliary tuberculosis. Further, it is known that in exceptional cases bovine tubercle bacilli may give rise to typical fatal pulmonary tuberculosis in adults, and that a not inconsiderable number of cases of lupus are due to the same organism. There is, therefore, a widespread refusal to accept Koch's view regarding innocuousness of bovine tuberculosis for man, and there is also a great divergence of opinion regarding the no less important view that human and bovine tuberculosis are different diseases.

Thanks to the numerous investigations that have been carried out in the meantime by celebrated authorities in all parts of the world, there is a certain tendency for these two views, originally diametrically opposed, to become less widely separated, in that no one at the present time doubts that there exist certain biological differences between tubercle bacilli cultivated directly from human sources and those from bovine sources. Opinion as to the extent of these differences and their importance is, however, still the more sharply divided. While the followers of Koch strongly maintain the absolute difference of human and bovine tubercle bacilli, and defend their view as to the non-identity of human and bovine tuberculosis on the grounds of the constancy of the characters of the two types of mammalian tubercle bacilli, as emphasized by Kossel, Weber, and Heuss, there is at least as large a body of investigators who more or less incline to the view that one type may become converted into the other, and, therefore, that the mammalian tubercle bacillus is an entity.

The doctrine of the constancy of the two types of bacilli can be shaken by the demonstration of the so-called transitional forms and of atypical cultures, and also by the experimental conversion of one type into the other. There can be no doubt that the so-called transition forms and atypical cultures occur, that is, strains of tubercle bacilli which cannot be placed in either one group or the other. A number of authors have shown that it is possible to so alter the human type of bacillus by systematic passage through animals that, with the means at present at our disposal, they cannot be distinguished from bacilli of the bovine type. (For full details see the Report).

The reporter concludes from the evidence that the two types of tubercle bacillus, the human and the bovine, are not types or sub-species with constant characters, but rather varieties of one and the same bacillus with relatively variable characters. He recognises that the bacilli cultivated directly from the human or bovine sources possess certain biological characters which permit of a distinction in the majority of cases into a human and bovine type. These characters are not fixed. The occurrence of transitional forms (atypical strains) under natural conditions, and the possibility of experimentally altering bacilli of the human type by systematic passage through animals in such a way that they cannot be distinguished from the bovine type, indicate that these distinguishing features are dependent upon adaptation to the tissues of the host for the time being, and that with a change of host they may under certain circumstances be again altered.

With regard to the question as to the relationship between the cause of avian tuberculosis and that of mammalian tuberculosis, the reporter agrees with those who hold that avian and mammalian tubercle bacilli are not distinct species, but varieties that have become adapted to different species of animals, but as he has not personally investigated the subject he forbears from expressing a definite conclusion on this point.

A CASE OF NEURO CEREBRAL INTOXICATION.

Subject: A bay filly 18 months old, 13-3 h.h. bought at a fair price and in good condition. Eight days after purchase she staggered a little and kept her head down when moving from right to left, but when warmed up and head kept up went all right for a little distance. As the owner remarked, she walked as if asleep.

A purge was given without much relief, and three weeks later the symptoms were more marked.

The mucous membranes of mouth and eyelids were strongly hyperæmic. Exploration of available glands revealed nothing, the Schneiderian membrane was normal. Temperature 38 C. Respiration sounds well developed, regular, quiet and uniform, 14 per minute, no signs of disease on palpation and auscultation. Heart normal, sounds well defined, pulse elastic, 50. Abdomen normal in shape and size, no signs of visceral lesions.

The animal stood as if stupified and moved as already described, having no control over head or limbs, losing equilibrium and taking a zig-zag course. When the eyes were bandaged the loss of equilibrium was greater, and if led over an obstacle the mare lifted her feet very high off the ground, 40 to 50 cm.

Excitability was normal, the mare noticing what was going on around: reflexes were well maintained, not only on the body but in the limbs also.

The eyes revealed no marked symptoms, the sclerotic and anterior were normal, but the pupil was markedly dilated, sensibility normal. Ophthalmic examination showed hyperæmia of the optic papillæ and dilatation of the retinal vessels.

The mare took, masticated, and swallowed her food normally. Urine normal in appearance, quantity and analysis. Fæces easy and painless, frequent and regular, no worms or ova.

Blood good colour, reaction alkaline, coagulation complete and rapid, serum clear. Red cells, 6,500,000; white cells, 9,500. Red cells mostly a good colour, some pale, absence of hæmoagglutinin and poikylocytosis. Leucocytic formula: Polynuclear neutrophiles 70 per cent., lymphocytes 10·66 per cent., mononuclear giants 8·33 per cent, eosinophiles 2 per cent.

Nervous system: The symptoms disappeared after rest but active movements increased them, even to falling.

Treatment purely symptomatic, light bleeding, saline purges, diuretics: no improvement, so the animal was killed.

Post-mortem: Condition excellent, muscle masses and fibres bright and healthy: abdomen peritoneum and viscera normal, no fluid; mesentery slightly discoloured, lymph vessels thickened and hypertrophied, reddish

bodies the size of beans containing greyish red parasites and zone of caseation. The glands contained two or three, or more.

Blood vessels, slight blush on intestinal mucous membrane, colon and cæcum vessels free of worms.

Stomach and spleen normal. Liver, a few parasitic nodules, kidneys normal. The chest had some pleural fluid, lungs some parasitic nodules. Lymph glands enlarged and reddish, normal in conformation and consistency and containing the parasites mentioned. Heart, pericardium, and endocardium normal.

Contents of skull normal, dura mater normal, no serous exudate in brain or meninges, the veins of the arachnoid slightly congested, continuous sections of the brain revealed nothing abnormal to the naked eye, no effusion in the ventricles. Little was to be seen as to the nerve cells except a slight enlargement of the cellular portion and slight cloudiness of the cells of the cortex.

Spinal cord: Rachidnian fluid normal in quantity and appearance, ganglia and general structure markedly altered, at some points stuffed with leucocytes and degenerated endothelial cells, the connective tissue thickened with small cell infiltration; near the points of parasitic infestation there were necrotic and suppurative foci, but the chief histological feature of the parasitised ganglia was a very marked local eosinophilia.

One is bound to recall to mind the theory of verin connection with the parasites now noticed, which were minous toxins frequently suggested by various observers nematodes, larvæ of sclerostomata equinum, tetracanthum, and others. These are found in their agamic stage in the arteries, the portal vein, the liver, pancreas, lungs, testicles, and subperitoneal and pleural tissue, the submucosa of the bowels, specially of the cæcum and in the ganglia of the brain and spinal cord.

Colin Willach and Olt maintain that the larvæ of these sclerostomes traverse the intestinal walls and reach the liver, right heart and pulmonary capillaries and greater circulation to the mesenteric arteries.

Perroncito, Leuckhart, Raillet, Streher, Glage and Marek say that the young larvæ of sclerostomes enter the horse by means of water and feed and perforate the walls of the small bowels direct to the mesenteric arteries, setting up localised inflammation, thrombosis and thickening of the walls of the vessels with dilation. From such a nidus the developing worm reaches the terminal branches of the vessels of the colon and cæcum and produces a true submucous worm nodule; on reaching full development they leave the nodule and enter the bowel.

Gherardin, on the other hand, maintains that the submucous tumours are the last stage of development from the agamous to the perfect worm, and that the aneurisms are the result of verminous distensions of the vessels brought about by invasion of the mesentery.

It may be seen that the larvæ of sclerostomes developed from eggs are to be found in both food and water and are set free by the digestive juices, they are foreign to the animal, and the six-pointed chitinous beak traverses the intestinal wall and so the worms reach the lymph glands; meanwhile the larvæ of sclerostomes having traversed the intestinal wall may be found in large numbers in the chyliferous glands which, carrying out their proper function of filtration, retain the larvæ, which continue their development and are carried by the lymph stream to other glands, the thoracic duct and right heart, thence to the capillaries of the lungs, and form later parasitic nodules. Those that traverse the small intestine develop in the circulation: they may arrive in the glands of the mesentery in three ways:

1. Traversing the walls of the intestine the larvæ fall into the peritoneal cavity, and there, owing to the peristalticand antiperistaltic movements of the epiploon always in motion, and its phagocytic lining, clear the abdomen of foreign bodies, and so the larvæ reach the lymph stream.

2. Reaching the sub-serous lymphatic rete of the first part of the duodenum the larvæ pass direct to the rete of the epiploon.

3. A direct track between the small and large bowels, and by so doing set up a thickening of the vessels ordinarily scarcely visible, and give the characteristic appearance to the epiploon.

Significance of some clinical data. The paralytic symptoms point to alterations in the brain cortex, medulla oblongata and motor tracts. A leading symptom is the sense of loss of equilibrium—vertigo of the senses: Is there a reflex action from local lesions on the cortical centres of the nervous system? Possibly, no.

Further, are the symptoms phenomena of the sensory or of the motor nerve system—do they arise in the central nerve system? Some of the symptoms are apparently sensory, it is as much vertigo as simply instability of the organism, yet that it is not only a motor disturbance is shown by the efforts to re-establish equilibrium.

The central nervous system, the central psycho motor by a modified function in communication with a special peripheral sensory impression responds with an ineffectual muscular reaction and erroneous posturing of the body. The horse at rest shows no symptoms, then why, on enforced movement, should it stagger and fall? From the fact that the maintenance of equilibrium—the rhythm of movement—although independent of the volition is *en rapport* with consciousness, and though partly automatic are capable of modification by the will, hence the loss of regularity if the brain is intoxicated.

In flying loss of direction is common, and in trying to avoid an obstacle in a room one is attracted to it. What causes these psycho motor inco-ordinations? Loss of tone of psycho motor centres.

Vertigo is known to arise from certain infectious diseases, such as typhoid, auto-intoxication from renal and hepatic complaints, intestinal poisons acting on the medulla oblongata, the vasomotor nerves of the skin. There is also toxic vertigo, neuropathic, circulatory and so on. The action of toxic agents and damage to nerves are in most instances looked on as causative, either alone or in conjunction. In the present case we have the toxin secreted in the sclerostomes diffused throughout the system without any marked protective action in the lymph. This protective action is most important for the organism, for in the lymph are the products of nutritive waste, and all the katabolic products of the elemental cells. The enormous and diffuse lesions of the lymphatic system caused by the obstruction of this stream is produced by changes in the glands and the elemental cells of their tissues.

These different causes associate to bring about a real intoxication of the organism, on the one hand secretion products of the sclerostomes, on the other poison products of the organism, bring about a grave alteration in the lympathic system and a failure to remove excremental products of decomposition and metabolism, with functional derangements. Result—an alteration in nutrition dependent on the modification of the protoplasm of the nerve elements brought about by verminous toxins and the poisons elaborated in the system.

We find numerous reports of cases of psycho-intoxication, and of toxic substances whose action is on nerve elements. These substances can be placed in two categories, (1) those formed in the body itself—endogenous cerebral or neural intoxication; (2) exogenous nerve centre intoxication, in which case the toxic agent is produced outside the system, bringing about such disturbance of the brain as vertigo.

In this class is the toxin produced by sclerostomes, discussed at the International Veterinary Congresses of

1889 and 1905. Weinberg and Julien have isolated such a toxin and produced muscle lesions with it, they noticed the breakdown of the red cells, and found the toxin resisted a temperature of 115 for 20 minutes.

The sclerostomes secrete a substance capable of precipitating the albumins of the serum of the blood of the horse, the larvæ also produce it in a less degree. In 1913, Weinberg and Julien noted that the brownish colour of the fat of the conjunctival tissue of certain horses affected with sclerostomes was due to the deposit of iron pigment, and considered that this was derived from the destruction of the red cells by numbers of sclerostomes, they also noted the pigmentary infiltration of the spleen and liver and glands resulting from intense erythrophagasia, like that produced in rabbits by inoculation of tænia toxin.

Toxin derived from sclerostomes has been proved to bring about an intense deglobulinisation and consequent pigmentary granulation in different organs, especially the liver and spleen of rabbits. In 1908, Bondony made a special chemical extract of sclerostomes of the horse, producing a crystal alkaloid, a nitrogenous organic compound with marked hæmolytic properties.

In 1913, Weinberg and Julien injected into the conjunctival mucous membrane of a horse a few drops of watery extract of sclerostomes with a result that later, in 13 out of 94 horses, they obtained an evident reaction; palpebral œdema, quick and abundant lachrymation which rapidly disappeared, so differentiating it from the ophthalmic reaction of mallein or tuberculin, and differing in its quick reaction from the irritation of chemical substances. They consider that it acts directly on the red cells of the conjunctival tissue and on the vessel walls. Weinberg considers these investigations lend a new interest to the study of helminthiasis in the horse which is responsible for an intoxication of the organism, slight or intense, acute or chronic, produced by the toxic products of the parasites. Connected with this intoxication is a series of accidents depending on the location of the parasites, in different organs, and the way they are attached. Helmintho-toxins have a common characteristic, namely, an action more or less intense on the hæmatopœtic organs, and according to the species of parasite they act more quickly on the vasomotor nerves or on the nervous system generally.

A method of testing those parasites is an observation of histo-eosinophilia or local eosinophilia, well known as a result of phlogistic infiltration in the tissues of organs such as the thyroid and thymus, and in the human subject is considered a reliable indicator in ankylostomiasis and trichinosis. In 1900, Achard and Loeper produced an artificial eosinophilia by means of injection of extracts of parasites. In 1908, Weinberg and Julien produced a similar result with extract of sclerostomes.—*La Clin. Vet.*

F. E. P.

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

[National V.M.A.—Southern Branch].

The Annual General Meeting of this Association was held on Friday, January 29th, at 50 Friar Street, Reading, the residence of the Hon. Secretary and Treasurer, Mr. G. P. Male. Owing to the present conditions, the usual dinner was dispensed with, and the business agenda was reduced, only necessary formal business being dealt with. The attendance of members suffered from the same cause. Those present were: Mr. J. Willett (Vice-President), London, who occupied the Chair; Messrs. G. P. Male, J. W. Hopkin, Henley-on-Thames; R. J. Verney, Oxford; W. Pauer, Blackwater.

The minutes of last meeting were read, confirmed, and signed.

The Hon. Secretary announced apologies for inability to attend from Messrs. J. C. Coleman (President), H. Slocock, J. W. Parker, R C. Tennant, Prof. Brayley Reynolds, and J. H. Wilson, Newbury,—the President and Mr. Tennant being away on service.

Financial.

The Treasurer presented the balance sheet for the year ended December 31st last, which had been circulated. The expenditure included subscriptions of £5 5s. to the Victoria Veterinary Benevolent Association, and £5 to the Hunting Memorial Fund.

Mr. Male (Hon. Treasurer) pointed out that the subscriptions had come in very slowly this year; but that some accounts being still outstanding the balance at the bank was about the same as last year, in spite of somewhat abnormal expenditure. He hoped that members would make a special effort to support the Treasurer, and send their subscriptions as usual.

After the balance sheet had been discussed in detail, Mr. Willett, who had kindly undertaken to audit the accounts proposed, and Mr. Verney seconded, the approval and adoption of the statement, and the resolution was carried unanimously.

The Army Veterinary Corps.

The Hon. Secretary submitted the circular letter from the Royal College of Veterinary Surgeons, and the Conditions of Service for Temporary Commissions in the Army Veterinary Corps, which he had received since the agenda calling this meeting was printed.

Mr. Willett said that satisfactory arrangements had been made by medical practitioners in London and elsewhere, and he saw no reason why the scheme should not work well among the veterinary profession. In London the doctors assisting took half the fees and the owner of the practice the other half.

Mr. Pauer pointed out that some of the distances that have to be travelled would be very great, and that the question of adjusting the fees would be a difficult one.

Mr. Male said he had told those whom he knew who had gone to the war that he would do anything he could to help them, and that when they came back he would not think of taking their clients. (Hear, hear).

Mr. Verney mentioned that Mr. Jagger, of Bicester, who had to go, decided to let his practice go and to take it up again on his return.

Mr. Male added that a lot of people had simply shut up their practices and gone. He suggested that he should send the two documents out to each member of the Association, asking whether they were willing to serve abroad or at home, or whether they would be willing to help neighbouring practitioners. This Association might then hold a special meeting, to which we might invite veterinary surgeons who perhaps were not members, but who lived near members who might have to go, so that some working arrangements might be come to. (Hear, hear).

Mr. Willett said the difficulty he saw was that of book debts. (Hear, hear). Some people would not pay perhaps for a couple of years; and it would be for the member to take the onus of that. If a member went to the front he should make some working arrangement in that respect. It would be most difficult for a man to go into another's practice and charge, especially if one man took the practice for one month, and another for another. He would rather trust a member of his own profession to see the thing straightened out than he would trust the client.

Mr. Male did not think there ought to be much difficulty if every man acted honourably to his friend and neighbour. (Hear, hear).

Mr. Willett concurred; but he thought it would be better to have a working arrangement with their friend

rather than to deal direct with the client. He moved that the communications be sent out, with a covering letter, as suggested by the Hon. Secretary, and that the communications be published in *The Record* as part of the proceedings of this meeting. [These appeared in our issue of January 30th, pp. 404 and 412 respectively].

Mr. VERVEY seconded tthe motion, and it was carried unanimously.

SKIN DISEASES AFFECTING ARMY HORSES.

Mr. PAUER commented upon the frequency of mange and ringworm in army horses and the difficulty of diagnosis, especially in the early stages of the disease.

An interesting discussion followed, in which all took part.

The CHAIRMAN gave very interesting and encouraging details of successful treatment with mercurial soap when properly applied.

Mr. VERNEY described another successful treatment, and emphasised the necessity of careful and thorough applications, also the need for the disinfection of stables after the animals were dressed to prevent reinfection. He was a great believer in good food and exercise.

Mr. MALE described his methods of diagnosis, and said it was often very difficult to find the sarcoptic parasites unless blood scrapings were taken.

During the proceedings tea was served.

Votes of thanks terminated the meeting.

VICTORIA VETERINARY BENEVOLENT FUND.

The quarterly meeting was held at 10 Red Lion Square, London, on Thursday, Jan. 7th. There were present: Mr. S. H. Slocock, in the chair, Sir John M'Fadyean, Messrs. R. C. Trigger, N. Almond, G. H. Wooldridge, P. J. Howard, G. A. Banham, W. Freeman Barrett, and Wm. Shipley, Hon. Sec.

The minutes of the previous meeting having been published in the Veterinary Press were accepted and confirmed.

Apologies for absence were received from Messrs. E. Alfred West, F. L. Gooch, and others engaged on military services.

SECRETARY'S REPORT.

In presenting my Quarterly Report I will first inform you of our financial position, as it will be a guidance to our future grants.

I had to point out to you a probable considerable loss of income due to the fact that many annual subscribers were employed on military duties at home and abroad, and not approachable, and even if so, serving their country at great sacrifice, having, in many cases, to leave their practices with no veterinary surgeon to carry them on. I therefore suggested that we should invite further help from those at home whose income in cases had increased, or were pursuing the happy tenour of their way.

I am glad to say I have been able to bridge over my difficulties; thanks to the magnificent help of a few donors—men whose names constantly appear in all appeals in the profession. It would be invidious to make any distinction, but one must appreciate the magnificent donation of £50 by Sir John M'Fadyean. I hope, however, you will give me instructions to place this sum to some special account—preferably to an educational account, in reserve for a case we may consider to the advantage of some child.

Our deficit I estimated at £63; our subscriptions at £27. These have only produced £19, as against £54 of last year. Donations since then have been £91 6s. 6d. Outstanding subscriptions paid since that date and new subscribers amount to £31 9s. 0d., and our dividends remain the same. I have therefore been able to meet all liabilities, and have a small balance in the Bank, but I would warn you that this may not be a trading balance.

We are making grants to the widows and children of sixteen veterinary surgeons, in no case more than 10/- per week. The position of the widows, or the number children, can allow of no greater help. In fact, there are five cases in which only 5/- per week can be given, and I often wonder what the general public would say if no better provision were made for the widows and children of our soldiers and sailors.

I have continued my investigations, as instructed in October last, and must appeal to your kindly consideration for a little delay. Fears of bombardment, one having occurred, and local work, have not allowed me to give the time to the work I should wish. I hope in the future to be able to suggest to you the increase in several cases. In not one can I advise a discontinuance.

I propose shortly to make an endeavour to get at least one of the children of Mrs. E. Farr elected to the "London Orphan Asylum." I am in communication with the Secretary, and will read his letter. I am still distressed over the case of Mrs. T., and will submit communications. A letter from an unfortunate veterinary surgeon, who at present should be nameless, I must submit. I have great difficulties in obtaining the information I require. I desire to recommend an increase in the grant to Mrs. W. This will have to be done through the daughter, in order not to interfere with the old age pension. Mrs. Stuart's letter should be sufficient guarantee to us that the case is most deserving. I therefore trust you will consider this.

I feel you would be much interested in the numerous letters of gratitude I receive, all of which I send on to your President. I purposely withhold letters of abuse from cases in which I feel I cannot submit the appeals in the absence of credentials.

It is my earnest hope that every member of the profession will do their best to forward the work, for I am certain there are many others who should be helped.

I would like to add that the kind help of Mr. E. Alfred West has now developed. We are receiving a weekly cheque from the "Rendezvous Cinema" of a sum that will probably keep one of our recipients in her weekly allowance of 10/- per week.

Subscriptions and Donations received since last quarterly meeting:—

DONATIONS.

M'Fadyean, Sir John (spec. donat.)	£50	0	0
Slocock, S. H., Hounslow, Middelsex	10	10	0
Trigger, R. C. Newcastle	5	5	0
Schofield, Capt., A.V.C., India	5	0	0
West, E. Alfred, S. Kensington (Xmas donat.)	5	0	0
Willett, F. W. Staines	4	4	0
Woodger, J., Chiswick	3	3	0
Villar, Sidney, Harrow-on-the-Hill (spec. donat)	2	0	0
Temple, J., Aberaman, Aberdare	1	1	0
Smith, T. E., Market Rasen	1	1	0
Grigson, Geo., Dulwich, S.E.	1	1	0
Bowes, Mrs. Headingley Lane, Leeds	1	1	0
Sumner, H., Eaton Road, W. Derby	1	0	0
Gofton, A., Edinburgh		10	6
McKinna, J., Huddersfield (Xmas donat.)		10	6
Edwards, E.R., Board of Agric.		10	0
West, E. Alfred, "Cinema"		10	6
" " "		9	6
" " "		9	6
" " "		8	6
" " "		8	6
A New Year's gift from English Veterinary Surgeons acting in Canada: J. Brown, P. D. Reavy, J. W. Rider, Tudor Hughes, P. R. Thompson, W. L. Little	3	0	0

SUBSCRIPTIONS.

Hamilton, J. R., Bloemfontein, S. A.	2	2	0
Temple, J., Aberaman, Aberdare	1	1	0
Hunting, S. C., Haswell, Sunderland	1	1	0
Hatch, J., Hampstead, N.W.	1	1	0
Over, Alfred, Rugby	1	1	0
Inglis, T. M., Ingleside, Forfar	1	1	0
Munro, Alex. M., Birkenhead	1	1	0
McLaren, J. H., Ebbw Vale, Mon.	1	1	0
Minett, F. C., Chipping Sodbury	1	1	0
Malvisi, C. A., King's Cross, N.	1	1	0
Roach, Wm., York Road, Exeter	1	1	0
Gofton, A., Edinburgh		10	6
Lansley, G. D., Axminster		10	6
Hynes, C. P., Lismore, Waterford		10	6
Holl, A. C., Castle Hill, N. Buckenham		10	6
Haskell, E. G., Whiting Street, Bury St. Edm.		10	6
Jones, Richard, Towyn, Merionethshire		10	6
Miller, J. E., Upper Dovercourt, Harwich		10	0
Martin, Jas., sen., Wellington, Salop		10	6
McGuinness, Thos., Belfast		10	6
Monro, Alex., F.R.C.V.S., Dublin		10	6
Washford, Jeremiah, New Romney, Kent		10	6

The Secretary was instructed to hold over the donation of Sir John M'Fadyean of £50 until the Council should decide whether it be used for some special purpose, or whether it shall go to current expenditure for the year.

The Secretary was instructed to proceed with the efforts to get at least one of the sons of Mrs. Farr elected to the London Orphan Asylum. Further, to send the votes for the London Orphan Asylum back to the Treasurer, in accordance with previous arrangements.

On the proposition of Sir John M'Fadyean, seconded by Prof. Wooldridge, it was decided to continue the grant of 5s. per week to Mrs. T——. pending further enquiries.

A further vote of 5s. per week to the invalided daughter of Mrs. W——, was granted on the recommendation of Mrs. W. K. Stuart, the Council feeling this was one of our most deserving cases.

An application from a distressed veterinary surgeon was deferred, pending further enquiries, particularly owing to the inability of making further grants except to most deserving cases.

The Council appreciated the development of the "Cinema" fund through the kindness of Mr. E. Alfred West, and directed for the time being it should go to current account.

The Council desires it to be known that subscriptions for 1915 are now due; a prompt and generous response will save the Secretary considerable correspondence, and be to the fund a great saving in postages.

W. SHIPLEY, Hon. Sec. and Treas.

ARMY VETERINARY SERVICE

Extract from *London Gazette*,

WAR OFFICE, WHITEHALL, Jan. 29.

TERRITORIAL FORCE. ARMY VETERINARY CORPS.

The King has been graciously pleased to confer the Territorial Decoration upon the undermentioned Officer of the Territorial Force, who has been duly recommended for the same under terms of Royal Warrant dated 17th August, 1908:—Major T. H. Hobson, F.R.C.V.S.

Feb. 1.

REGULAR FORCES. ARMY VETERINARY CORPS.

Lieuts. from Special Reserves to be Lieuts.:—

J. J. Mills, C. J. R. Lawrence, R. H. Knowles, C. H. S. Townsend. Dated Feb. 2.

TERRITORIAL FORCE. ARMY VETERINARY CORPS.

The date of appointment of Lieut. B. H. Benson is Sept. 6, and not as stated in *Gazette* of Jan. 6. J. Daly to be Lieut. Dated Jan. 13. J. Spruell to be Lieut. Dated Feb. 2.

Feb. 2.

Hon. Vet. Lieut. H. C. Jagger to be Capt. (temporary). Dated Feb. 3.

Feb. 3.

REGULAR FORCES. ARMY VETERINARY CORPS.

W. J. R. Gordon to be temporary Quartermaster with hon. rank of Lieut. Dated Feb. 4.

Personal.

BRITTLEBANK—DAVIS. On Feb. 3rd, at St. Mary Magdalene Church, by the Rev. John Thomas, Vicar, Lieut. Brittlebank, A.V.C., eldest son of the late Major Brittlebank, 6th Dragoon Guards, to Maud Evelyn, elder daughter of W. R Davis, M.R.C.V.S., Enfield, and grand-daughter of the late Principal Williams, Edinburgh.

OBITUARY

LEWIS HOLL, M.R.C.V.S., Outwell, Wisbech.
Graduated, Lond: May, 1853.

Mr. Holl's death occurred on Tuesday, 2nd inst., from arterial sclerosis; his age was 83 years.

JAMES SMITH, Llandudno.
Graduated, Lond.: Mar., 1882.

Mr. Smith died on Feb 1st, at the age of 52.

A. V. FIELD, 78 North Road, Southend-on-Sea, Essex.
Graduated, Lond.: July, 1884.

Death occurred on Jan. 23rd. Aged 50.

ELIZABETH ANNE COOPER.—On 30th Jan., at Shenstone Court, Lichfield, Elizabeth Anne, widow of Sir Richard Powell Cooper, Baronet, M.R.C.V.S., aged 66.

Sir,

In Mr. F. W. Willett's very interesting address to the Central Veterinary Society on November 5th, 1914, I notice the following statement:—

"Facts given recently as to the output of veterinary surgeons in various countries revealed that we were far behind in point of numbers to the population. When we find in Denmark there is one to every 133,000, and in the United States one to every 210,000 approximately, while in the British Isles there is only one to every 500,000, it shows what a vast amount of veterinary work which should be carried out in the interests of the community, is at present left undone; it also shows that the remuneration must be comparatively greater to the average practitioner in other countries."

Surely Mr. Willett's statement that there is only one veterinary surgeon in the British Isles to every 500,000 cannot be correct. If this were true there would only be ten veterinary surgeons in London, and about eighty in the British Isles.

Re the last sentence, "It also shows that the remuneration must be comparatively greater to the average practitioner in other countries." Assuming Mr. Willett's figures to be correct, I think the remuneration should be comparatively smaller to the average practitioner in other countries, as the greater the number of practitioners in a country the smaller must be the average remuneration.

G. REES MOGG, F.R.C.V.S.,
7th Cavalry Brigade, B. E. Force.

[*The Register*, 1914, gives 3408: over 400 of these are abroad: assuming the population of the British Isles at 45 millions, shortly, 45,000 divided by 3 gives 15,000.]

Death and the Adrenal Glands.

It is probably a unique observation in morbid pathology that there exists one particular organ, the adrenal gland, careful examination of which can indicate with tolerable certainty the manner or mode of death. To explain the relation of this gland the following facts may be noted. Of the two parts of the gland the

cortical, constituting 80 to 90 per cent. bulk of the organ, stores a lipoid material; the medullary portion secretes adrenalin.

An intimate physiological relationship exists between the nervous sympathetic system and the adrenalin gland content which controls the vascular tension. An effective supply of adrenalin ensures an efficient circulatory and general tone; diminution leads to fall of blood pressure and asthenia. The estimation of the gland adrenalin content after death shows important changes, and it is these which indicate something of the conditions preceding death. Dr. T. R. Elliott (*Quarterly Journal of Medicine*, Oxford, 1914, vol. 8, p. 47) has examined the glands from the point of view of adrenalin content in 80 cases (the lipoid was estimated in 170 cases). The first fact brought out was that no relationship could be established between the particular disease and the adrenalin content, nor was there any definite relationship between cortex and medulla. But an important difference in content was noted when the mode of death was inquired into. Sudden death, due to whatever cause, showed a practically normal adrenalin content. Where general distress preceded death, a marked loss of secretion in the gland was noted. For instance the gland content in a case of sudden death was 4·5 mg. (a normal figure); in a heart case with slow failure and apathetic death 2·3 mg.; in another heart case with acute failure and mental distress, 0·2 to 0·7. Prolonged anæsthesia may induce similar changes—*e.g.*, long anæsthesia, 2 to 3·0 mg. That adrenalin exhaustion follows strains imposed upon the nervous system has been abundantly shown in experiments, and that the gland is "emptied" as it were of adrenalin by splanchnic nervous channels has been shown in cats, where, on splanchnic supply being cut off, the gland it supplies is not affected under exhausting general conditions which "empty" the opposite normally innervated gland. The adrenal glands are played upon by emotional and vasomotor reflexes as frequently as are the muscles of the blood-vessels themselves. In such a crisis as impending death from diphtheria intoxication, for instance, there is an urgent demand by the individual to combat the fall of blood pressure and other changes elsewhere. To maintain the vascular tone the adrenalin is called upon, and we find as a result lessened quantity under such conditions. The different effect that mode of death exerts upon the adrenalin where the essential cause, cerebral hæmorrhage, was the same, was strikingly seen in two cases. In one case death followed 11 hours after a severe and extensive positive hæmorrhage; adrenalin content much diminished, 1·2 mg. Evidence here shows drain on glands due to vasomotor medullary action being induced by the sudden rise of blood pressure demanding slower pulse rate. In a second case, however, where pachymeningitis hæmorrhagica occurred with two days' coma preceding death, the adrenalin content was 3·0 mg. Here the coma deleted any distressing conditions liable to induce gland exhaustion. Many facts in this valuable paper throw light also upon cortical function; theories are critically examined, and an account of the technique for reliable gland examination mentioned.—*The Lancet.*

Action for Damages to a Motor Car.

At Tuam Quarter Sessions on Wednesday, 13th ult., Miss A. Cust, V.S., Fort Lyster. Athleague, Co. Roscommon, sued Mr. A. J. Fallon, LL.B., Solicitor, Mountbellew, for £15 damages for injury sustained to her motor car, used without her consent, and at which time the defendant was a passenger.

In the course of evidence Miss Cust, who holds the appointment of veterinary surgeon for the Mountbellew District, stated that when she became unwell in April she went to London, Mr. Fowler was sent to do her work. She did not make the actual arrangement by which she was to pay him £3 a week and an allowance of 15s. expenses for the motor bicycle he brought from England, as the means of locomotion during his discharge of her duty. Further, that she did not authorise Fowler, either before or after he went to Mountbellew, to use her car; that she did not receive the wire which Mr. Fallon says Fowler told him he was sending to ask for the car; and until her return on July 17 did not know her car was being used. (In reference to the suggestion for the defence, is it necessary that a veterinary surgeon or gentleman doing your business should have a motor car?) A car was very desirable and pleasant, but unnecessary. Fowler was paid for using a motor bicycle. She knew a good many who have not cars. Even the young gentleman (Mr. O'Dea, V.S.) beside her.

Mr. Fallon stated that he met Mr. Fowler frequently after he came to Mountbellew on June 23. They lived in the same house but in different apartments. He had been with Mr. Fowler in the car on two occasions—to a tennis party in Killian; and returned with him in the car from Tuam bazaar, about one or two o'clock, after a dance: two or three miles out the car ran into a heifer and was upset. Later, he stated that during his stay in Mountbellew, Mr. Fowler had been absent for four days or a week in England. He told witness that he was going to ride in some point-to-point races. He understood he left Mr. Ryan, V.S., in charge of the District during his absence. Mr. Fowler took the car away with him when going to Athlone.

At the close of the evidence, His Honour said he was satisfied that there was no authority given by Miss Cust to Mr. Fowler to use the car, and that she was never consulted or asked for permission to use it.

On Thursday morning, His Honour announced that he would deliver judgment in the action, Cust v. Fallon, at the next term.

Operation on Cat: Fine £2.

David Trivett, a stableman, was summoned at Richmond for performing an operation on a cat without due care and humanity.

The solicitor for the R.S.P.C.A. said the object of the proceedings was not only to punish defendant, but to warn the public to take their cats to properly qualified people.

The owner of the cat said defendant told him that he had operated on a good many cats, as he used to be employed by a veterinary and that used to be his function.

Mr. Anderson, a veterinary surgeon, stated that the cat was suffering intense pain. The operation had been performed most unskilfully.

Defendant told the Bench that he had performed similar operations for a veterinary surgeon while he was working for him. A fine of 40s. was imposed.

Practical Training for Meat Inspectors.

The twenty-sixth course for candidates preparing for the examination for inspectors of meat and other food, conducted by The Royal Sanitary Institute, will commence on Friday, February 12th, at 7 p.m., and will consist of practical training in the inspection of meat at a cattle market, including demonstrations on live cattle and sheep, slaughtering and dressing of animals, names and situations of the organs, diseases of animals, methods of stalling, arrangement of markets and byres, etc., conducted by J. R. HAYHURST, M.R.C.V.S., D.V.S.M. (Vict.), Chief Veterinary Inspector and Superintendent of Abattoirs, Metropolitan Cattle Market, Islington.

Two lectures at the Institute on Mondays, April 26th and May 3rd, at 7 p.m., on potted foods, milk, butter and eggs, by Prof. H. R. KENWOOD, M.B., D.P.H., F.R.S.E.

Demonstrations are arranged at a knackers' yard, and the Fish Market, where instruction regarding the flesh and organs of the horse, and in fish inspection, will be given.

Instruction will be given at the Institute on Friday evenings and demonstrations at a market on Saturday afternoons.

Lectures in Part II. Course for Sanitary Officers.

Four lectures by J. H. Hayhurst, M.R.C.V.S., D.V.S.M. (Vict.):—

Friday, April 9th. Signs of health and disease in animals destined for food, when alive and after slaughter.

Monday, April 12th. The names and situations of the organs of the body in animals.

Wednesday, April 14th. Practical methods of stalling and slaughtering animals.

Friday, April 16th. Diseased meat, with a demonstration of morbid specimens collected from meat markets.

Three lectures by A. R. Litteljohn, M.R.C.S., D.P.H., M.R.C.V.S.:—

Monday, April 19th. The appearance and character of fresh meat, organs, fat, blood, fish, poultry, milk, fruit, vegetables, and other food, and the conditions rendering them, or preparations of them, fit or unfit for human consumption. Preserving and storing meat and other foods.

Wednesday, April 21st. The hygiene of byres, lairs, cow sheds, and slaughter houses, and all places where animals destined for the supply of food are kept, and the hygiene of markets, dairies, and other places where food is stored, prepared, or exposed for sale and transported.

Friday, April 23rd. The laws, by-laws, and regulations affecting the inspection and sale of meat and other articles of food, including their preparation and adulteration.

Wednesday, April 21st. Inspection and demonstration at Messrs. Harrison Barber & Co.'s Knackers' Yard, at 3 p.m., conducted by J. R. Hayhurst, M.R.C.V.S.

Friday, May 7th. A demonstration on fish inspection will be given at the Chief Fish Inspector's Office, 9 and 10 St. Mary-at-Hill, London, E.C., at 7 p.m., by Chas. Hattersley, Chief Fish Inspector, Fishmongers' Company.

The fee for the two months' course of practical training will be £3 3s., or for the complete course, including the lectures and demonstrations in Part II. of the course for sanitary officers, £3 13s. 6d.

Students who enter for the examination can have 10s. 6d. carried towards their fee.

Students and others desirous of attending the course are requested to send in their names at once to the Secretary of the Institute, 90 Buckingham Palace Road, S.W.

E. WHITE WALLIS, Secretary.

A discussion will take place at the Institute on Tuesday, Feb. 9, at 7.20, on *Tall versus Short men for the Army*, to be opened by M. S. Pembrey, M.A., M.D., late member Advisory Committee, A.M.S. The chair will be taken by Surg.-Gen. Sir W. Launcelotte Gubbins, K.C.B.

DISEASES OF ANIMALS ACTS 1894 TO 1914, SUMMARY OF RETURNS.

Period.	Anthrax		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange. ‡		Sheep Scab.	Swine Fever.	
	Outbreaks (a)	Animals.	Outbreaks (a	Animals.	Outbreaks (b)	Animals.	Outbreaks (b)	Animals.	(b)	Outbreaks (a)	Slaughtered. *
GT. BRITAIN. Week ended Jan. 30	14	18			1	1			15	73	216
Corresponding week in 1914 ...	21	21			1	1	93	177	19	57	378
Corresponding week in 1913 ...	10	10			2	11	75	173	12	29	278
Corresponding week in 1912 ...	30	37					126	246	14	72	723
Total for 5 weeks, 1915	88	100			3	5			79	408	1787
Corresponding period in 1914 ...	98	105			9	26	428	845	71	237	1882
Corresponding period in 1913 ...	60	71			15	70	422	1010	57	175	2280
Corresponding period in 1912 ...	122	139			12	31	774	2037	77	301	3263

‡ The Parasitic Mange Order of 1911 has been suspended as from 6th August, 1914.

(a) Confirmed. (b) Reported by Local Authorities. † Counties affected, animals attacked: London 1.

Board of Agriculture and Fisheries, Feb. 2, 1915

IRELAND. Week ended Jan. 30	...	...	...	...	...	...	Outbreaks 2	15	5	19
Corresponding Week in 1914 ...	...	...	1	19	...	...	3	33	4	20
Corresponding Week in 1913 ...	...	...	...	...	...	...	12	12	...	25
Corresponding Week in 1912 ...	...	...	...	...	...	...	3	21	2	8
Total for 5 weeks, 1915 ...	...	...	...	...	...	...	5	69	20	99
Corresponding period in 1914 ...	...	...	1	19	...	...	17	119	15	94
Corresponding period in 1913 ...	...	...	...	...	...	...	49	89	24	124
Corresponding period in 1912 ...	1	1	...	...	...	...	11	110	13	154

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Feb. 1, 1915

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection